

Application No.: 10/809,142
Docket No.: PE0667 US DIV1

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AUG 23 2006

REMARKS*Status of the Application*

Claims 1-7, 9, 11, 14-17, and 19-21 are pending. The pending claims are objected to on grounds of cited informalities. The pending claims stand rejected under 35 U.S.C. § 102.

Amendments to the Claims

Claims 1, 7 and 21 are being amended to address the Examiner's objections to those claims.

Claim Objections

The Examiner has objected to certain informalities in claims 1, 7 and 21. Claim 1, line 9 and claim 21, line 10 are amended to delete —, Ia,— since Formula I(a) does not have any R groups. Applicants respectfully suggest that this amendment sufficiently addresses the Examiner's objection as set forth in paragraphs 3(a) and 3(d) of the Office Action. By making this amendment, Applicants have retained the definitions of adjacent R groups in Formulas I and III as being able to form a ring. Claim 7 is amended to insert Formulas IV(a) through IV(h) in lines 3-6 as required in paragraph 3(c) of the Office Action. The objections in paragraphs 3(b) and 3(e) are not understood, and therefore, no amendments are being made in this response.

*Claim Rejections – 35 U.S.C. § 102*Inbasekaran

Claims 1-7, 9, 11, 14-17, and 19-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Inbasekaran et al., U.S. Patent No. 5,777,070. To anticipate claims under review, the single prior art reference must disclose each and every limitation in the claims, in the order therein presented, and must enable the claimed invention. Inbasekaran discloses in Example 4 an alternating copolymer of the general formula —A-B-A-B-A-B-A-B-A-B— in which A represents the fluorene comonomer and B represents the biothiophene comonomer. The claims are not limited to strictly alternating copolymers of this general formula. Nor does Inbasekaran disclose more than one A or more than one B comonomer, or the comonomers of Formula I with R substituents other than alkyl or the comonomers of Formula I(a) or the other comonomers of Formula IV. In claim 7 the at least one second monomeric unit can be selected from Formulae I, I(a), and any of the IV(a) through IV(h). Accordingly, this rejection should be withdrawn.

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Kim '864

Claims 1-7, 9, 11, 14-17 and 19-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kim et al., U.S. Patent No. 5,876,864. Applicants respectfully traverse this rejection. Kim '864 discloses a polymer described in the Abstract as a fluorene-based alternating polymer. An alternating polymer regularly repeats in the following manner, where A and B represent the repeating comonomers, both of which are fluorene-based and derived from formula (I):



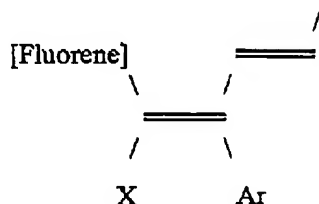
The present claims are directed to a copolymer having at least one fluorene-based comonomer having Formula I or Formula I(a) and at least one comonomer having a 5-membered heteroaromatic ring of Formula IV (please see, e.g., claim 1) or at least one second comonomeric unit selected from Formulae I and I(a). In Kim '864, as shown in formula (I) the basic structural repeat unit (SRU) or backbone of the alternating polymer includes $-\equiv Ar-$ where Ar represents substituted or unsubstituted phenyl or the heterocyclic compositions shown in Col. 5, lines 25-30 in particular, and is further illustrated in the formulae shown at Col. 4, line 50 to Col. 7, line 5, as well as the acetylene group on each end of the SRU. The structures shown at Col. 16, lines 1-45 all contain at least one 6-membered ring (aromatic or heteroaromatic) and the acetylene group that is absent from the claimed copolymers. Kim '864 does not disclose a copolymer other than a strictly alternating pattern as depicted above. Table 1, Cols. 15-16 presents the chemical structures of polymers from Kim's working examples. All contain acetylene groups in the SRU; this functional group is absent from any claimed copolymer and none of the structures shown here depict the second comonomer of Formula IV. In addition, Kim '864 does not show any substitution on the phenyl rings of the fluorene comonomer, as do the claims under review. For these reasons, Kim '864 does not anticipate the pending claims. Applicants respectfully request that this rejection be withdrawn.

Kim '974

Claims 1-2, 4-7, 9, 11, 14-17, and 19-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kim et al., U.S. Patent No. 5,807,974. This rejection is also respectfully traversed. Kim '974 also discloses a fluorene-based alternating copolymer (Abstract). Formula (I) in Kim '974 depicts an SRU that contains a fluorene group and a side chain,

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Again, there is no equivalent side chain in any of the present claims. There is no equivalent SRU in the claims. Therefore, the claimed copolymers are different compositions from those disclosed in Kim '974. For these reasons, Kim '974 does not anticipate the pending claims. Applicants respectfully request that this rejection be withdrawn.

Conclusion

It is respectfully submitted that none of the art of record anticipates the invention as now claimed. The above amendments are made to put the claims into condition for allowance. A Notice of Allowability is requested respectfully.

Respectfully submitted,


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